	Steam Atomizing		Air Atomizing	
	Calories per Kg-	B.t.u. per Lb.	Calories per Kg.	B.t.u. per Lb.
Heat released by oil	10,400	18,720	10,400	18,720
Heat carried to stack at 400 °	1,960	3,528	1,850	3,330
	8,440	15,192	8,550	15,390
Difference in favor of air atomizing . .			110	0

F. lower, due to firebox construction. In fact, much lower temperatures may be obtained under unfavorable conditions. Similar methods to the above make these curves and the volumetric data in Tables 11 to 21 extremely useful in designing furnaces for a particular fuel.

Several systems are in use for preheating the air for boilers on ships and on land. The temperature drop of the waste gases ranges from 70° C. (126° F.) to 120° C. (216° F.). The temperature rise in the air ranges from 60° C. (108° F.) to 105° C. (189° F.). These curves may be utilized to approximate the effect of such preheat:

Steam or Air Atomizing	Calories per Kg.	B.t.u. per Lb.
Heat in 120 per cent air supply at 120° C.	420	756

This will result in an increase in calorific intensity of about 50° C. (90° F.). This extra heat will be utilized at boiler efficiency in producing steam. Preheating of the oil supply to secure fluidity results in a slight addition to the heat available.

The ruling temperature of a heating operation is the temperature to which the material being heated must be raised in order to